



# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

|   |   |   |                     |
|---|---|---|---------------------|
| Applicant's or agent's file reference<br><b>M/45272-PCT</b>   |   | <b>FOR FURTHER ACTION</b>   | See Form PCT/PEA416 |
| International application No.<br><b>PCT/EP2004/011568</b>   | International filing date (day/month/year)<br><b>14.10.2004</b> | Priority date (day/month/year)<br><b>14.10.2003</b>   |                     |
| International Patent Classification (IPC) or national classification and IPC<br><b>INV. H01M8/02 H01M8/10</b>   |   |   |                     |
| Applicant<br><b>NUVERA FUEL CELLS EUROPE S.R.L.</b>   |   |   |                     |
| <p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> |   |   |                     |
| <p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input checked="" type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>  |   |   |                     |
| Date of submission of the demand<br><b>15.02.2006</b>   |   | Date of completion of this report<br><b>04.04.2006</b>  |                     |
| Name and mailing address of the international preliminary examining authority:<br> European Patent Office - P.B. 5818 Patentlaan 2<br>NL-2280 HV Rijswijk - Pays Bas<br>Tel. +31 70 340 - 2040 Tx: 31 651 epo nl<br>Fax: +31 70 340 - 3016   |   | Authorized officer<br><br><b>González-Cuenca, M.M</b><br>Telephone No. +31 70 340-4740<br> |                     |

**INTERNATIONAL PRELIMINARY REPORT  
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**Box No. I Basis of the report**

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

**Description, Pages**

1-18 as originally filed

**Claims, Numbers**

1-14 as originally filed

**Drawings, Sheets**

1/5-5/5 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

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**Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application,
- ☒ claims Nos. 1 (partially), 14  
because:
  - ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):
  - ☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
  - ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
- ☒ no international search report has been established for the said claims Nos. 1 (partially), 14
- ☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:
  - the written form ☐ has not been furnished
  - ☐ does not comply with the standard
  - the computer readable form ☐ has not been furnished
  - ☐ does not comply with the standard
- ☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-bis of the Administrative Instructions.
- ☒ See separate sheet for further details

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

|                               |             |      |
|-------------------------------|-------------|------|
| Novelty (N)                   | Yes: Claims | 2-13 |
|                               | No: Claims  | 1    |
| Inventive step (IS)           | Yes: Claims | 2-13 |
|                               | No: Claims  | 1    |
| Industrial applicability (IA) | Yes: Claims | 1-13 |
|                               | No: Claims  |      |

2. Citations and explanations (Rule 70.7):

**see separate sheet**

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**Re Item III.**

**Rule 6.2 (a) PCT**

The application does not meet the requirements of Rule 6.2 (a) PCT because claim 14 refers to the figures. Therefore neither search nor examination has been performed regarding said claim 14.

**Clarity - Article 6 PCT**

The application does not meet the requirements of Article 6 PCT because claim 1 is not clear. Claim 1 does not meet the requirements of Article 6 PCT in that the matter for which protection is sought is not clearly defined. By using the wording "characterised in that the lateral migration of ions proceeding from said thermostating fluid inside said ion-exchange membranes is prevented", said claim 1 attempts to define the subject-matter in terms of the result to be achieved, which merely amounts to a statement of the underlying problem, without providing the technical features necessary for achieving this result.

Therefore the search has been carried out on a stack consisting of a filter-press modular arrangement comprising a multiplicity of single proton exchange membrane fuel cells and of cooling devices, each cell being delimited by a pair of metal bipolar plates and comprising ion-exchange membranes and perimetrical sealing gaskets shaped as frames suitable for housing current collectors within their hollow central part, the bipolar plates and the gaskets being provided with passage openings comprising holes for feeding the reactant gases, for extracting the residual gases with the reaction products, for injecting and discharging a thermostating fluid.

Therefore the examination has been restricted as well.

**Re Item V.**

Reference is made to the following documents:

D1 : EP 0 629 015 A (DE NORA PERMELEC S.P.A; NUVERA FUEL CELLS EUROPE S.R.L) 14 December 1994 (1994-12-14)

**1. Novelty - Article 33(2) PCT**

The present application does not meet the criteria of Article 33(1) PCT, because the

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subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

Document D1 discloses (the references in parentheses applying to this document):

Stack consisting of a filter-press modular arrangement comprising a multiplicity of single proton exchange membrane fuel cells and of cooling devices, each cell being delimited by a pair of metal bipolar plates and comprising ion- exchange membranes and perimetrical sealing gaskets shaped as frames suitable for housing current collectors within their hollow central part, the bipolar plates and the gaskets being provided with passage openings comprising holes for feeding the reactant gases, for extracting the residual gases with the reaction products, for injecting and discharging a thermostating fluid (see page 5, lines 5-12, 43-47 and figures 1 and 4).

The combination of the features of claims 2 to 13 are neither known from, nor rendered obvious by, the available prior art. Therefore said claims meet the requirements of the PCT in respect of novelty and inventive step.

**2. Industrial applicability - Article 33(4) PCT**

The subject-matter of claims 2 to 13 is industrially applicable. Therefore said claims meet the requirements of Article 33(4) PCT.